

RW/NSNFP Quarterly Meeting
March 19th and 20th, 2002
Las Vegas, NV

To: Distribution

From: Phil Wheatley / Mark Arenaz

Subject: RW/NSNFP Quarterly Meeting Minutes

1. Opening Comments (Mark Arenaz)

Mark stated that he is looking forward to a spirited meeting and continued progress on the licensing strategy for the Yucca Mountain Project including DOE SNF. It is an interesting time in DOE-EM with many new thoughts being shared on how to handle SNF and HLW in a simple and less expensive way. Although the idea has been mentioned, DOE-EM is not planning to send DOE SNF bare in casks to the repository but is holding to the baseline plan to ship it in canisters within the casks. It was noted later in the meeting that shipping DOE SNF bare in casks could increase the number of SNF shipments. Joel Case has come to the meeting and will be talking to people outside of the meeting about what is required to have the Project consider taking INEEL non-vitrified calcine in canisters.

2. Opening Comments (Dick Spence)

Dick has completed his 13th year on the Yucca Mountain Project today (March 19th). The Project is waiting for the Governor of Nevada to act on the President's site recommendation to the Congress. The Project is also working to revise the MOA between DOE-RW and EM. The Project has been evaluating new options for the design including such things as staging commercial SNF for cooling on the surface or in the sub-surface facilities. The licensing strategy for the Project and DOE SNF is also being reviewed.

3. Prior Action Items (Phil Wheatley)

Phil went over the previous Quarterly Meeting(s) action items and all have essentially been completed except those that relate to the proposed meeting with the NRC on the licensing strategy for DOE SNF, as the meeting was postponed.

4. Site Recommendation Status & Path Forward (Tim Sullivan)

All of documents that support the Site Recommendation (SR) can be found on the Yucca Mountain Project web site www.ymmp.gov. The State of Nevada may veto the President Bush recommendation to the Congress by April 15th and Congress could override this veto by July 15th. Impact reports for the State of Nevada by county (approximately 800 pages) are also on the web site. They are comprised mostly of previous comments made to the Project and DOE-RW and BSC are preparing responses.

On the path forward, the plan is to finish the License Application (LA) for construction by December 2004. Up to this point the Project will also be refining the waste package and facility designs. Transportation activities within Nevada will also be initiated. All of this work is still directed at waste acceptance in 2010. It was asked if a ROD will be issued on the EIS and none is planned. It was also asked if the TSPA-SR will be updated and it will be updated. The Project does not plan to address any of the new DOE-EM ideas such as shipping non-vitrified calcine material unless they are formally requested to do so.

5. Licensing Strategy (Steve Cereghino)

The Yucca Mountain Project licensing strategy paper was issued for review on January 23rd and the plan is to resolve the comments by mid-April. The white paper on the licensing strategy for DOE SNF was also recently reviewed and the comments will be resolved simultaneously so that both papers will be integrated and can be re-issued by the end of April. The goal of the licensing strategy is to demonstrate safety of the repository with (1) the least restrictive set of design commitments, (2) the most flexible set of operating conditions and (3) the least restrictive set of performance confirmation without increasing the risk to operations and increasing operator exposure. *For a continuation of the licensing strategy discussion, go to the section below titled NRC Technical Exchange Meeting (Mark Wisenburg).*

The License Application (LA) will be structured to follow the format of the draft Yucca Mountain Review Plan and contain such things as general information, the safety analysis report (SAR) and the FEIS. The NSNFP and DOE-EM will be asked to review portions of the LA to ensure that the DOE SNF descriptions and characterization are correct and they may even be asked to help write certain sections. The licensing support network will be available to contain information that can be used as a discovery tool but it is not a records management system. Jack Bailey provided the critical path schedule of what has to be done to allow submission of the LA to the NRC by December 2004. It shows, for example, that TSPA-LA model development will be frozen by May of 2003.

6. Strategy for Inclusion of DOE SNF (Mark Wisenburg)

The preclosure safety case for DOE SNF is to demonstrate the integrity of the SNF canister and to demonstrate if one were breached the release would be less than the regulatory limit. Preclosure criticality must also demonstrate the integrity of the canister. For postclosure criticality, the criticality FEP is screened out. The key is to determine what assurance is needed to demonstrate that this applies to DOE SNF and that the SNF as delivered is covered by the analyses.

7. Plan B Review (Jack Bailey)

Jack went over the highlights of Plan B, which is the latest Yucca Mountain Project schedule. The schedule has the LA being submitted to the NRC in December 2004. It was asked if the repository would be designed for the hot or cold case and it was said that it would use the flexible design which covers both hot and cold operation. The overall program goal is to accept waste by 2010. If the LA is submitted in 2004 and the NRC

takes three years to review the application, it leaves 2007 to 2010 (three years) to compete construction and startup testing. Such things as early construction, modular construction and phased construction could be used to help get the facilities on line in such a short period of time. It was asked if the surface facility was going to have wet or dry handling? It was said that the design is currently leaning toward mostly dry with some wet capability. It was also asked what the status is to resolve disruptive events? The Project is trying to determine igneous centers and the consequences of igneous events.

The NSNFP stated that because of budget cuts, they terminated colloid testing. The Project had been asked if results from these colloid tests were important to TSPA but no analyses had been provided to answer this question. A short report will be provided that might provide the necessary information.

The NSNFP also stated that they need to know fairly soon if the Project will place a heat limit on SNF canisters or if the DOE-EM sites will need to take canister heat measurements.

Action Items

1. BSC (Jack Bailey) send the short report via e-mail to Jim Linhart on colloid testing and he will forward it to the NSNFP. Due Date = 3/22/02
2. BSC (David Rhodes / Bob Andrews) provide DOE SNF canister heat limit and measurement requirements. Due Date = 5/1/02

8. HLW Summary (Denis Koutsandreas)

The HLW Program has been asked to look at ways to reduce the amount of vitrified waste by 75%. Shipping non-vitrified calcine is one idea along with disposal of plutonium oxide without immobilization. Isolating some of the HLW in their current waste tanks is another thought.

9. Yucca Mountain Design Alternatives (Paul Harrington)

The Project has been conducting studies to evaluate various design alternatives although the waste package design is not being looked at much.

Surface Facility - possibility of building one small building that can start the repository emplacement process in 2010 and adding other buildings later to increase the throughput. The buildings that are built later could even include enhanced designs gained from the experience of operating the first building. Cranes have been considered for most cask and SNF movements in the past but the possibility of drops has also been there. Transporters with wheels are now being considered where most drop scenarios would be eliminated and the remaining potential drops would be from very low heights.

Subsurface Facility - possible changes in drift shape and ground support were evaluated and it was concluded that the current SR design was better. Changes in

drift and ventilation configuration are still being considered and the drifts would be shorter with emplacement access from only one end of the drift.

10. Aluminum Fuel Disposition Status (Howard Eckert)

DOE-EM is looking at ways to reduce cost and not increase health and safety risk. The Savannah River Site (SRS) still has the baseline of using the melt and dilute process for aluminum SNF. However, work on this process is on standby at this time while other alternatives are being considered. A final decision should be out by the end of September 2002 and two alternatives to the melt and dilute process are (1) reprocess the aluminum SNF or (2) send the untreated (bare) aluminum SNF to the repository in canisters. Option 2 could increase the canister count to the repository.

From the preclosure safety case at the repository, there should be no change for Option 2 versus the current plan as both the melt and dilute product and bare SNF would be in a canister which would not be dropped and breached. The TSPA currently covers both melt and dilute and bare aluminum SNF. For criticality, the melt and dilute has been evaluated and the bare SNF may need more work which could cost approximately \$200,000.

The EM-provided split between DOE SNF and HLW means that the repository would receive 2,333 MTHM of DOE SNF but the projected inventory for 2025 is about 2,500 MTHM. It was asked if the inventory has to be limited to 2,333 MTHM, which DOE SNF would not be shipped? The NSNFP replied that after certain SNF is treated (Na bonded) or removed from the repository inventory for other reasons, there is only about 2,390 MTHM remaining. So the cut would be small (57 MTHM) and most likely be N-Reactor SNF since the current Integrated Repository Receipts schedule shows the N-Reactor SNF will be shipped last to the repository.

Action Items

3. BSC (David Rhodes) would bare aluminum SNF in canisters bound the melt and dilute case? Due Date = 5/1/02

11. DOE SNF Work Status and the ICD (David Rhodes)

Work on DOE SNF is going well. The ICD is finished but needs to go before a change board before final signature. In the future if the ICD were to be revised, a thought was to possibly break the ICD into smaller sections per waste form such as HLW, Pu, melt and dilute, SNF, Na bonded SNF, and others.

12. DOE SNF Criticality Status (Halim Alsaed)

Exclusion of moderator is the first requirement for preventing a criticality. The condition of the SNF can also make a difference as broken SNF can release kernels that spread out and raise the K_{eff} . Criticality can also be prevented with the use of neutron poisons or by inserting stainless steel rods that displace moderator. Waste packages that are destroyed by an igneous event would also have to be factored in. Much work on criticality analyses is planned for completion by September 30, 2002.

Later in the meeting, it was asked what criticality modeling had been done and Halim said that BSC has modeled the co-disposal waste package, which contains one DOE SNF canister. The NSNFP said that they have been looking at a waste package that contains two or more SNF canisters (dual packaging) and the report on this should be issued this fall. The criticality of a co-disposed waste package where the HLW goes away first (two-step process) is also being investigated. Also, the condition where some waste packages contain only DOE SNF, without HLW, may also need to be evaluated if HLW canisters are limited under the HLW equivalency determination or the current repository limit of 70,000 MTHM.

13. TSPA-LA Analyses of DOE SNF (Jim Duguid)

The geochemical analyses are ready to go out for review. The TSPA analyses NSNFP data feed is set for January 2003 and the TSPA-LA will go into checking on October 2003. The scope of TSPA-LA analyses of DOE SNF is (1) probabilistic and one-off runs for each of 11 SNF groups, (2) analysis of early failure of each spent fuel group and (3) sensitivity analyses of Groups 2-11.

14. Equivalent Plastic Strain White Paper (Dick Morissette)

The object of this paper is to explain to the NRC why the DOE SNF canisters will not be breached. The draft should be ready in late April 2002 and there is a need for technical expertise for the review. Once completed the contents of the paper should be discussed with the NRC possibly during the licensing strategy meeting. Since over 1000 canisters could be received per year at the repository, canister drops are credible events given current crane reliabilities. Therefore, there is a need for strain-based criteria.

The NSNFP feels that the computer models that they used to predict canister strains have been verified by actual drops. After many drops of various canisters, no canisters have been breached. David Rhodes suggested that the NSNFP might need to test a canister to actual failure to provide the whole picture to the NRC. It could be difficult to find a facility that can perform such an extra high drop.

15. NRC Technical Exchange Meeting (Mark Wisenburg)

DOE-RW wants BSC and the NSNFP to come to agreement on the licensing strategy before meeting with the NRC. And once the agreement has been reached, it would take about six weeks to prepare for the meeting. The NSNFP offered to send employees from the NSNFP to Las Vegas to work with BSC people on resolution of comments made on the two licensing strategy papers and this offer was accepted. The tentative schedule is to have the NSNFP and BSC people work the resolutions from April 1st to 15th so that the revised papers can be sent to YMSCO by April 29th.

Some from BSC felt that the meetings with the NRC on licensing strategy should first focus on all waste streams and not single out DOE SNF. It could even be divided into pre-closure and post-closure sections. Others felt that the NRC needs to know right up front that DOE SNF can be different from commercial SNF. It was also stated that DOE-

RW HQ needs to be kept informed of the progress on the licensing strategy issue. The NSNFP asked if they could attend an upcoming licensing strategy meeting with the NRC to get the feeling of how they are conducted even if DOE SNF is not specifically covered in the meeting.

Action Items

4. BSC (Guy Martin) / NSNFP (Bill Hurt) set up the team for licensing strategy papers comment resolutions tentatively for April 1st through 15th. Due Date = 3/29/02

5. YMSCO (Joe Price) invite the NSNFP to attend an upcoming NRC licensing strategy meeting. Due Date = on going

6. YMSCO (Joe Price) after the white paper comments have been resolved, brief the DOE-RW HQ people of the outcome. Due Date = Prior to 4/29/02

16. Nevada Transportation (Lee Fossum)

Lee (BSC) is working on the Nevada transportation issue with Robin Sweeney (YMSCO). National transportation is being worked by DOE-RW in HQ by Dave Zabransky and Jeff Williams. The Project is looking for a transportation expert to head up the entire effort integrating Nevada and the National transportation. If the rail line to Yucca Mountain is to be available by 2010, work needs to start on it by FY-04 but it will be costly and this could force its delay until 2015. Heavy haul and legal weight truck options are also being considered.

17. Transportation Issues (Dave Zabransky)

The Yucca Mountain Project draft RFP for transportation is due to be prepared by the end of FY-02 and the final will be issued in FY-03. This should support cask procurement by 2005. The NSNFP is looking to obtain input from the EM sites on transportation needs by June 1, 2002 to support the RFP.

18. NSNFP Budget (Phil Wheatley)

The NSNFP FY-02 budget started off with a planning number of \$14.7M but in the end was cut to \$6.3M to support procurement of WIPP Tru-Pack containers. Although some work had to be cut, the analysis work of DOE SNF being conducted at the INEEL and Yucca Mountain Project is still being worked and is the biggest part of the remaining budget. The budget for FY-03 is uncertain, but the NSNFP is looking for regular funding between \$5M and \$10M and additional potential funds from congressional plus-ups and technical development.

Under technical development (Nuclear Material Focus Area) funding, work has already been done in the area of welding and the actual fabrication of a High Integrity Can (HIC) of C-22 for use at Argonne. Other areas of work for this year are (1) drying Hanford SNF, (2) development of a drying standard, (3) advanced neutron absorber fabrication

(Ni-Gd) and (4) more remote welding development on a welder that inspects and repairs the weld as it is welded so the repair takes place before the weld pass is completed.

19. Depleted Uranium (Paul Harrington)

Paul is on the depleted uranium (DU) committee and would like any information on the possible uses of DU.

20. QA (Bob Blyth)

Bob reported that approximately 60% of all QA findings from audits that the NSNFP performed in the last calendar year were based on lack of procedure compliance. Bob asked that this information be factored into quality improvement efforts. It was also noted that the NSNFP has revised all of its QA procedures, which involved a lot of streamlining, and reissued them on January 15th.

21. WASRD / ICD (Markus Popa)

The WASRD was issued and the Project is now trying to make it available on their web site. Markus had issued an e-mail with the WASRD, CRD and General Specification documents attached looking for feedback as to how these documents might be integrated. When looking at the previous versions of the WASRD, it could be seen that many of the listed requirements were really engineering solutions that were negotiated agreements and these should go into the General Specification document. The actual requirements should be based on things like regulations.

It was asked if new waste forms, like non-vitrified calcine, should be added to these documents at this time or later as part of a LA amendment? It was said that new waste forms would not be incorporated into any Yucca Mountain Project document until they had formally been reviewed and the timing for their incorporation had been determined. *This was also covered under Item #4 above.*

22. Critical Issues (Phil Wheatley / David Rhodes)

Phil's list of critical issues:

1. Establish the licensing basis for the Project and DOE SNF.
2. Integrate the acceptance criteria for SNF into the licensing strategy.
3. Stay on track with the analysis work to support the LA submittal (work being done by Jim Duguid (TSPA-LA), Halim Alsaed (criticality) and the NSNFP).

David's list of critical issues:

1. The LA schedule could impact work that is needed to support the NSNFP over the next two years. The NSNFP stated that an approved Plan B would help the NSNFP justify their next year's budgets. It was also said that since Plan B has been released, it should now be compared to the NSNFP integrated schedule.

2. New potential waste forms are not part of the current baseline. Some analysis work should be done on these waste forms if it has been formally requested but these waste forms should not be added to the baseline until both DOE-RW and EM have formally accepted them and they have gone through the formal change request process. If they don't make the first LA, which is for construction, they could be added to the next LA, which is for receipt and disposal.

Henry Loo stated that there is a need to formalize the MOA process and to become more formal on other information that needs to be transmitted and requests for changes. It was agreed by the Project that this should be done.

23. Action Items (Mark Arenaz)

All of the action items were reviewed and their due dates were established (see attached).

24. Next Quarterly Meeting (Joe Price / Mark Arenaz)

The next Quarterly meeting was suggested for the first of June (week of the 3rd or 10th) and this will be confirmed at a later date.

Concurrences:

By Telecon

By Telecon

Joe Price, YMSCO

Mark Arenaz, NSNFP

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